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[54] **MOTION CONTROL SYSTEMS**

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[57] **ABSTRACT**

A system for motion control in which an application is developed that is independent from the actual motion control hardware used to implement the system. The system comprises a software system that employs an application programming interface comprising component functions and a service provider interface comprising driver functions. A system programmer writes an application that calls the component functions. Code associated with the component functions relates these functions to the driver functions. A hardware designer writes driver code that implements the driver functions on a given motion control hardware product. The driver functions are separated into core and extended driver functions. All software drivers implement the core driver functions, while the software drivers need not contain code for implementing the extended driver functions. If the software driver does not contain code to implement an extended driver function, the functionality of the extended driver function is obtained through a combination of core driver functions. The system programmer may also select one or more streams that allow the control commands to be communicated to, and response data to be communicated from, motion control hardware.

14 Claims, 64 Drawing Sheets